

(12) UK Patent Application (19) GB (11) 2 189 205 (13) A

(43) Application published 21 Oct 1987

(21) Application No 8609546

(22) Date of filing 18 Apr 1986

(71) Applicant
Coal Industry (Patents) Limited
(Incorporated in United Kingdom)
Hobart House, Grosvenor Place, London SW1X 7AE

(72) Inventors
Andrew John Robertson
Mark Anthony Dorrington

(74) Agent and/or Address for Service
J. I. Wood,
Hobart House, Grosvenor Place, London SW1X 7AE

(51) INT CL⁴
B65G 33/14

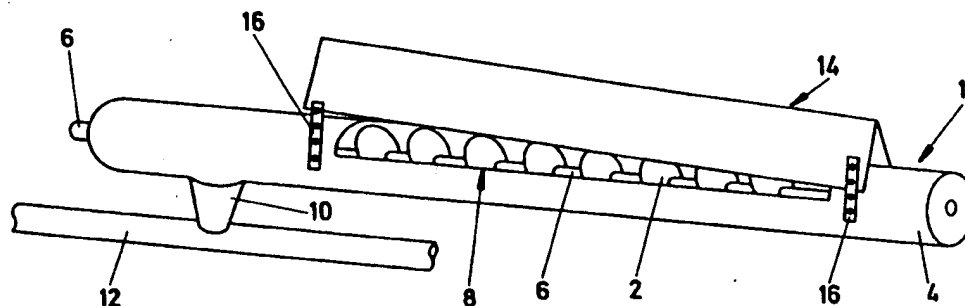
(52) Domestic classification (Edition I):
B8A 5JB
B8S 2D1 6C AE
U1S 1876 1896 B8A B8S

(56) Documents cited
GB 1007539 GB 0716743 GB 0475576
GB 0826453

(58) Field of search
B8A
B8S
Selected US specifications from IPC sub-class B65G

(54) Conveying screws

(57) A conveying screw 1 includes a conveying tube 2 housing a constant diameter flight. An access opening 8 is formed in the top of the tube 2 and located in spaced relation there above is a hood 14. The position of the hood 14 is adjustable to enable a variable loading to be applied to the screw 1, whilst allowing even discharge from a hopper within which the conveying screw 1 is located. The hood 14 may be vibrated to act as a bridge breaker.

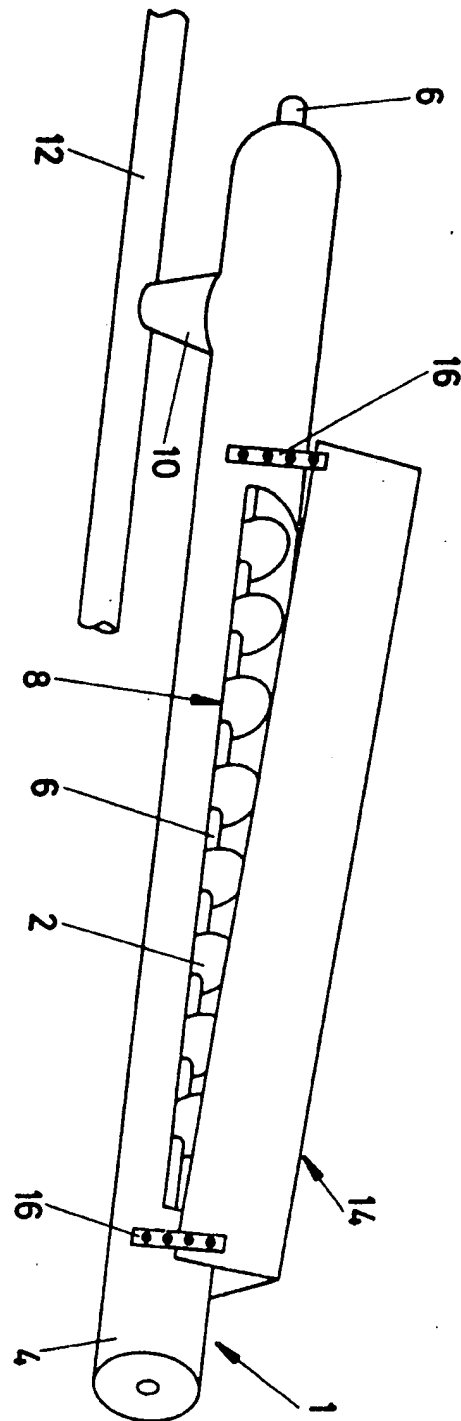


GB 2 189 205 A

18 APR 86 09546

2189205

1/1



SPECIFICATION

Conveying screws

- 5 This invention has reference to conveying screws.

- Conveying screws are widely used for transporting discrete materials and it is known to incorporate into the base of a storage hopper such a screw for the purpose of extracting its contents. The conveying screw is mounted within a confining sleeve which is relieved part way along its length to provide an open portion whereby the screw has access to the overlying material it is intended to convey. In order to extract material evenly from the open portion of the screw, the length of that portion should ideally be not greater than one to one and a half times the diameter of the sleeve. Unfortunately in many cases such a small aperture will not allow for the maximum discharge of the hopper. Conventionally, in an endeavour to provide for maximum discharge, the screw has been fabricated so that it will extract unevenly, thus allowing for an increased size of opening in the sleeve. Various designs of conveying screw have been developed for example increasing pitch screws, tapered screw flight diameter, increasing pitch screw combined with decreasing shaft diameter, or increasing flight diameter with increasing pitch. Whilst these designs have generally proved successful in operation, they tend to be costly to manufacture.
- 35 An object of the present invention is to provide an improved conveying screw capable of even delivery.

- According to the invention a conveying screw includes a screw flight arranged on a shaft for rotation within a conveying tube, an access opening in the tube extending longitudinally and part circumferentially thereof, and a hood arranged in spaced relation above the access opening.
- 45 The screw flight and the shaft may advantageously each be of constant diameter along the length of the screw, and the access opening may also be of constant dimension along its length and breadth.
- 50 The hood may conveniently be in the form of a gabled element disposed over the access opening. The distance of the hood above the access opening is variable and may be different at each end thereof. The hood may be mounted in isolation bushes, thus allowing the hood to be freely vibrated should this be necessary for adhesive materials, the hood acting as a bridge breaker. The mounting of the hood may be on the conveying tube.
- 60 The tube may have more than one access opening and a hood is provided for each opening. The hoods at each location of opening may be at different heights, the hoods being adjustable in relation to the tube.

- 65 By way of example, one form of conveying

screw according to the invention is described below with reference to the accompanying drawing which is an isometric view.

- Referring to the drawing, a conveying screw 70 1 comprises a conveying tube 2 within which is rotatably mounted a flight 4 carried by a shaft 6, both the flight and the shaft being of constant diameter. An access opening 8 in the top of this tube extends longitudinally over 75 part of the length of the tube 2 and part circumferentially thereof, the opening being of constant dimension in length and breadth. The tube 2 has a discharge chute 10 feeding into a conveying line 12.
- 80 Located in spaced relation above the access opening 8 is a hood 14 of gable form comprising a length of angle iron inverted as shown and fixed to the tube 2 by brackets 16. The position of the hood 14 above the 85 opening 8 is adjustable and the distance at each end thereof from the opening is different in this specific example, the lower edges of the hood 14 diverging from the tube 2 towards the discharge chute 10.
- 90 This arrangement of the hood 14 enables a variable loading to be applied to the screw, whilst allowing even discharge from a hopper (not shown) within which the conveying screw is located.

CLAIMS

1. A conveying screw including a screw flight arranged on a shaft for rotation within a conveying tube, an access opening in the tube extending longitudinally and part circumferentially thereof, and a hood arranged in spaced relation above the access opening.
2. A conveying screw according to claim 1 in which the screw flight and the shaft are of constant diameter.
3. A conveying screw according to claim 1 or 2 in which the access opening is of constant dimensions.
4. A conveying screw according to anyone of the preceding claims in which the hood is of gable form.
5. A conveying screw according to any one of the preceding claims in which the distance of the hood above the access opening is variable.
6. A conveying screw according to claim 5 in which the hood diverges from the conveying tube in the direction of discharge.
7. A conveying screw according to any one of the preceding claims in which the hood is mounted in brackets on the conveying tube.
8. A conveying screw amounting to any one of the claims 1 to 6 in which the hood is mounted for vibration.
9. A conveying screw substantially as hereinbefore described with reference to the accompanying drawing.

Printed for Her Majesty's Stationery Office
by Burgess & Son (Abingdon) Ltd, Dd 8991685, 1987.
Published at The Patent Office, 25 Southampton Buildings,
London, WC2A 1AY, from which copies may be obtained.